

Special Issue

Advanced Materials and Technologies for Hydrogen Production and Storage

Message from the Guest Editors

Renewable hydrogen production and storage play a pivotal role in catalysing the transition from fossil-based to green and decentralised energy generation. There is huge drive to replace fossil fuels in the near future to reduce carbon emissions that cause global warming and undesirable climatic changes. Aware of this reality, *green H₂* is being considered as a potential player in national and international strategies and is increasingly being applied to different sectors, from industry to transport. This Special Issue aims to present and disseminate the most recent advances in the fields of catalysis, process efficiency, modelling, techno-economic assessment (TEA), and life-cycle analysis (LCA) to understand the technology development, cost, and environmental impacts on the hydrogen energy route, including production, storage, and final use.

- Hydrogen production from renewable and waste feedstocks, such as biogas, glycerol, and alcoholic waste;
- Hydrogen storage technologies, including compressed and liquefied hydrogen, liquid organic carriers, metal hydrides, methanol (CH₃OH), and ammonia (NH₃);
- Synthetic natural gas (SNG) production by Sabatier reaction.

Guest Editors

Dr. Cristina Italiano

Institute for Advanced Energy Technologies "Nicola Giordano", Italian National Research Council (CNR-ITAE), Via S. Lucia 5, 98126 Messina, Italy

Dr. Antonio Vita

Institute for Advanced Energy Technologies "Nicola Giordano", Italian National Research Council (CNR-ITAE), Via S. Lucia 5, 98126 Messina, Italy

Deadline for manuscript submissions

20 October 2025



Energies

an Open Access Journal
by MDPI

Impact Factor 3.2
CiteScore 7.3



mdpi.com/si/221945

Energies
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
energies@mdpi.com

[mdpi.com/journal/
energies](https://mdpi.com/journal/energies)





Energies

an Open Access Journal
by MDPI

Impact Factor 3.2
CiteScore 7.3



[mdpi.com/journal/
energies](https://mdpi.com/journal/energies)



About the Journal

Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and Industrial Engineering, University
Niccolò Cusano, 00166 Roma, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, RePEc, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:

CiteScore - Q1 (Control and Optimization)